From: rob.sutschek@gm.com
To: Jay Smith/AA/USEPA/US@EPA
Cc: Jason Gumbs/DC/USEPA/US@EPA; Cleophas Jackson/AA/USEPA/US@EPA; Daniel Cullen/AA/USEPA/US@EPA
Subject:
Date: 04/08/2010 10:48 AM
Attachments: D102 CO2 Water Interference per 1065 04062010.htm
V240_99 Base Veh2Dyno CSV Information for CERT documentation 032310.pdf

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Hello Jay -

The long answers to the questions are included in this email as forwards with attachments. The short version will be answered in blue next to your questions.

Please feel free to call if you wish to get further clarification. You can call Dave (248-343-7247) Question 1, Mike (248-255-7779) Question 2, or myself (734-368-3142) Question 3 -- directly to expedite any clarifications.

Thank you -
Rob
734-368-3142
----- Forwarded by Rob Sutschek/US/GM/GMC on 04/08/2010 10:19 AM -----

Smith.Jay@epamail.epa.gov

04/01/2010 09:40 AM

To rob.sutschek@gm.com
cc Gumbs.Jason@epamail.epa.gov, Jackson.Cleophas@epamail.epa.gov, Cullen.Daniel@epamail.epa.gov
Subject Follow-up documents

Hello Rob,

To close out our audit checklist, I will need the following documents/information:

1) On the site inventory, can you identify which emissions bench was used for the confirmatory testing? This bench should also correspond to the bench tagged as "GM_NGSBAG," for which all the calibration documents have been supplied.
Please see Dave Pitschel's response below. System ID PN017223 corresponds to Bench Tag GM_NGSBAG
2) On your CO_2 analyzer interference validation (results of 3/25/09 test on analyzer CO2_1), the X_{H2O} and T_{sat}values on the report are not realistic. I would think these are just misplaced decimals, but we need a corrected document for our records.
Please see Mike Edward's response below. A thermocouple key (channel) was misconfigured for the calculation (Tsat) on the report. Interference data prior to test and repeated after show compliance. HTML attached
3) We still need the document outlining what calibration changes are made for running on an engine dynamometer (changes to VSS expected inputs, gear signal, etc).
None of the changes listed in the attached (pdf) table have an emissions impact that would cause the vehicle to run higher emission levels than those tested and measured on the dyno during the certification data collection. Without these calibration changes, the engine will run differently on the dyno than it would in a vehicle. **CBI / Ex. 4** are altered to allow the engine to run appropriately without transmission or vehicle communication. The cal labels are detailed in the pdf.

We relayed the test results to the certification team in DC yesterday. I believe they may still have questions regarding your SCR dosing adaptation strategy, so you will want to follow up with them.

We will be sending a formal letter to Steve Bollinger once the audit is officially closed out. If you have any questions in the interim, please contact myself or your Jason Gumbs.

Best Regards,

Jay Smith

James D. Smith, Ph.D.
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----- Forwarded by Rob Sutschek/US/GM/GMC on 04/08/2010 10:19 AM -----

Dave Pitschel/US/GM/GMC

04/06/2010 10:29 AM

To Rob Sutschek/US/GM/GMC@GM

cc Mike Edwards/US/GM/GMC, Dennis S. Bammel/US/GM/GMC@GM, Gregory Green/US/GM/GMC@GM

Subject Follow-up documents

Rob,

See response below to Follow up question 1 from the EPA audit - 1) On the site inventory, can you identify which emissions bench was used for the confirmatory testing? This bench should also correspond to the bench tagged as "GM_NGSBAG," for which all the calibration documents have been supplied.

1) The bag bench used for the confirmatory testing is identified on the Site Inventory as System ID PN017223. This corresponds to Bench Tag GM_NGSBAG as it appears on the analyzer Linearization Check forms. Additionally, it should be noted:

- The FID analyzer listed in the inventory as part of the bag bench is a non-heated FID and is not used for diesel testing. The heated FID HC analyzer used for diesel testing is in a separate cabinet, controlled by the bag bench. While checking on your question, it was found that the HFID is not currently included in the site inventory printout. The HFID analyzer is a Horiba FID Model FIA 236

The HFID analyzer will be added to the Site Inventory.

David Pitschel
GM Powertrain Pontiac
248 343 7247

----- Forwarded by Rob Sutschek/US/GM/GMC on 04/08/2010 10:19 AM -----

Mike Edwards/US/GM/GMC

04/06/2010 12:49 PM

To Rob Sutschek/US/GM/GMC@GM

cc Dennis S. Bammel/US/GM/GMC@GM, Gregory Green/US/GM/GMC@GM, Dave Pitschel/US/GM/GMC@GM, Douglas L. Coventry/US/GM/GMC@GM

Subject Re: Fw: Follow-up documents Link

Rob,

Here is GM's response to EPA's question #2 below, regarding CO2 water interference test:

It was determined that, for the test completed 3/25/2009, a compliant interference result (within limits) was obtained, but the data channel for measurement of Tsat (downstream temperature) was improperly configured. This resulted in the recording of an erroneous value for Tsat. This, in turn, resulted in an incorrrectly calculated value for Xh2o (water concentration). Unfortunately this error was missed before the results were archived and provided to EPA.

Because a correct Tsat value was not recorded, it is not possible to provide a corrected printout for the 3/25/2009 test.

Note, for the CO2 water interference test, the sample was properly passed through a bubbler, as required by the regulations. Within approximately 30 minutes prior to the performance of this test, the same bubbler was used to perform the low-CO water/CO2 interference test. For that test, the following measured and calculated values were recorded:

Low-CO Water/CO2 Interference Test Results
Tsat = 24.3 deg-C
Pabs = 1413.250 hPa
Xh2o = 1.230%

It is likely that a similar value for Xh2o would have been recorded for the CO2 water interference test.

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As a further verification that the CO2 analyzer is still capable of producing a valid water interference result, the diagnostic was repeated today (4/6/10). A passing result was obtained. The new printout is attached.
(Note, the attached printout indicates that the analyzer linearity is turned "On" with "Missing Info". This means that, for reporting purposes only, the diagnostic was not able to retrieve the original linearization data from the bench hard drive. This is because the printout from the original linearization has been removed from the bench hard drive for archiving on our server. Even though the printout is no longer present on the bench hard drive, the linearity of the CO2 analyzer is known to be good, as validated by linearity verification performed within 35 days.)

Please let me know if you have any additional questions.

Thanks,
Mike Edwards